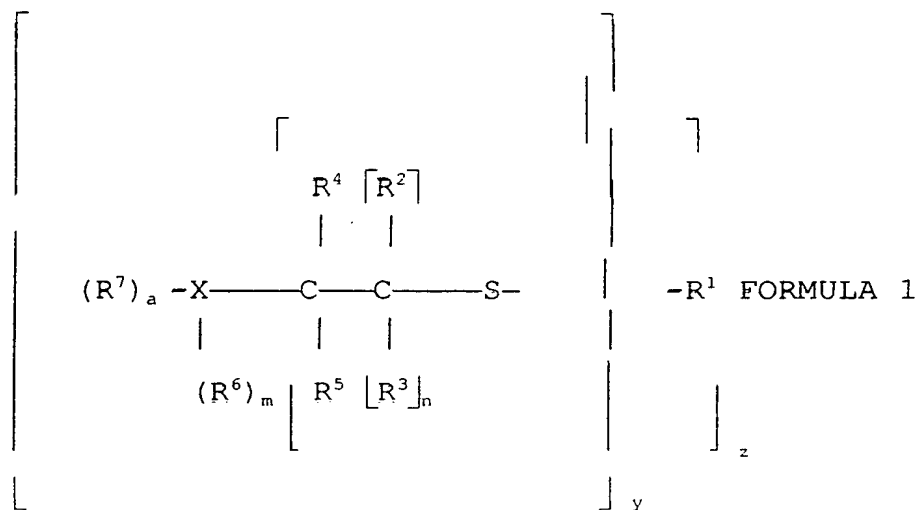


The subject matter claimed is:

1. A polymer composition normally susceptible to heat-induced decomposition comprising a halogen-containing polymer, the degradation products of a blocked mercaptan present during processing of the composition at an elevated temperature, said products including a free mercaptan; said blocked mercaptan having the structure:



wherein a is 0 or 1, m and n are 0 or 1; y = 1 to 4; when y = 1, z is 1 to 4; and when y is more than 1, z is 1; R<sup>1</sup> is an alkyl, alkylenyl, cycloalkyl, cycloalkylenyl, aryl, alkaryl, aralkyl, aralkylenyl, hydroxyalkyl, dihydroxyalkyl, hydroxy(polyalkoxy)alkyl, alkoxyalkyl, hydroxyalkoxyalkyl, alkoxy(hydroxyalkyl), alkoxy(acyloxyalkyl), alkoxy(polyalkoxy)alkyl, alkoxy(polyalkoxy)carbonylalkyl, carboxyalkyl, acyloxyalkyl, acyloxy(hydroxyalkyl), acyloxyalkoxyalkyl, acyloxy(polyalkoxy)alkyl, benzyloxy(polyalkoxy)alkyl, alkylenebis-(acyloxyalkyl), alkoxycarbonylalkyl, alkoxycarbonylalkylenyl,

hydroxyalkoxycarbonylalkyl, hydroxy(polyalkoxy)carbonylalkyl, mercaptoalkyl, mercaptoalkylenyl, mercaptoalkoxycarbonylalkyl, mercaptoalkoxycarbonylalkylenyl, alkoxycarbonyl(amido)alkyl, alkylcarbonyloxy(polyalkoxy)carbonylalkyl, tetrahydropyranyloxy(polyalkoxy)carbonylalkyl, tetrahydropyranyloxyalkyl, hydroxyaryl, mercaptoaryl or carboxyaryl radical having from 1 to 22 carbon atoms;  $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ , and  $R^7$  are independently hydrogen, a hydroxyl, mercapto, acyl, alkyl, alkylenyl, aryl, haloaryl, alkaryl, aralkyl, hydroxyalkyl, mercaptoalkyl, hydroxyaryl, alkoxyaryl, alkoxyhydroxyaryl, mercaptoaryl groups having from 1 to 22 carbon atoms; X is aryl, haloaryl, alkaryl, hydroxyaryl, dihydroxyaryl, alkoxyaryl, arylcycloalkyl, or a heteroatom, with the option that when a is 1 and m is 1,  $R^6$  and  $R^7$  form a heterocyclic moiety in conjunction with X as nitrogen, and with the further option that when a = 1 and m = 0, one of  $R^1$ ,  $R^3$ , and  $R^5$  joins with  $R^7$  and X to form a heterocyclic moiety with X as a heteroatom selected from the group consisting of oxygen and sulfur; with the proviso that z is 1 or 2 when X is aralkaryl,  $R^6$  and  $R^7$  are hydroxyl, a is 1 and m is 1, and with the further proviso that when  $R^6 \neq$  hydroxyl or mercapto, z is 1;

from about 0.005 to about 2 phr of a mixture of zinc chloride and a zinc carboxylate; and

from 0 to about 10 phr of at least one co-stabilizer selected from the group consisting of an epoxy compound and an organic phosphite; all based on the weight of the polymer.

2. The composition of claim 1 wherein the amount of the blocked mercaptan is from about 0.05 to about 4 phr, by weight, of the polymer.

3. The composition of claim 2 wherein the amount of the blocked mercaptan is from about 0.1 to about 3 phr.
4. The composition of claim 1 wherein the amounts of zinc carboxylate and zinc chloride in the mixture, expressed as zinc ion, are from about 15 to about 70% and from about 30 to about 85%, respectively, of the total amount of zinc.
5. The composition of claim 1 wherein the amount of the zinc chloride/zinc carboxylate mixture is from about 0.005 to about 1.0 phr.
6. The composition of claim 1 wherein the amount of said co-stabilizer is 0.
7. The composition of claim 1 wherein the amount of the zinc chloride/zinc carboxylate mixture is from about 0.005 to about 0.5 phr.
8. The composition of claim 7 wherein the amount is from about 0.08 to about 0.2 phr.
9. The composition of claim 1 wherein  $R^1$  is an acyloxyalkyl group.
10. The composition of claim 1 wherein  $R^1$  is a hydroxyalkyl group.
11. The composition of claim 1 wherein  $R^1$  is alkoxycarbonyl-alkyl.

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12. The composition of claim 6 wherein R<sup>1</sup> is an acyloxyalkyl group.

13. The composition of claim 6 wherein R<sup>1</sup> is a hydroxyalkyl group.

14. The composition of claim 6 wherein R<sup>1</sup> is an alkoxy-carbonylalkyl group.

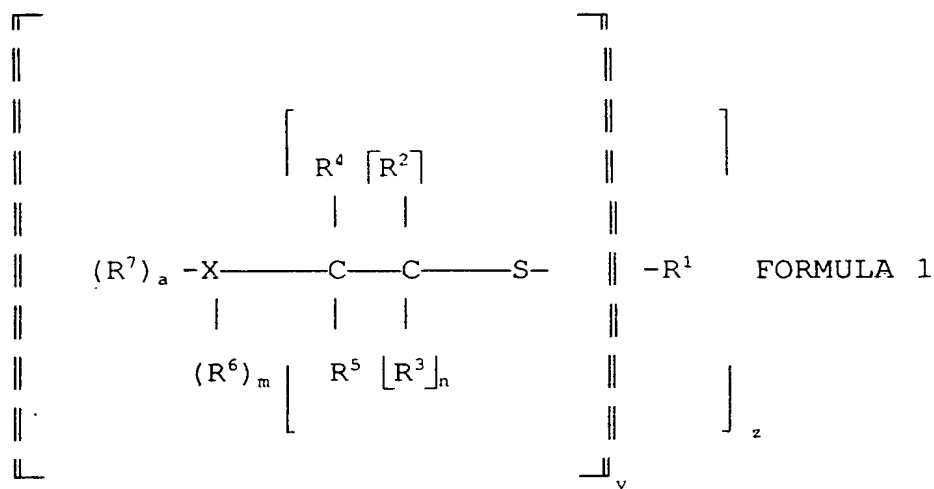
15. The composition of claim 12 wherein the amounts of the zinc carboxylate and zinc chloride in the mixture, expressed as zinc ion, are from about 15 to about 70% and from about 30 to about 85%, respectively, of the total amount of zinc.

16. The composition of claim 15 wherein the amount of the zinc chloride/zinc carboxylate mixture is from about 0.005 to about 1.0 phr.

17. The composition of claim 14 wherein the amounts of the zinc carboxylate and zinc chloride in the mixture, expressed as zinc ion, are from about 15 to about 70% and from about 30 to about 85%, respectively, of the total amount of zinc.

18. The composition of claim 17 wherein the amount of the zinc chloride/zinc carboxylate mixture is from about 0.005 to about 1.0 phr.

19. A stabilizer composition comprising a latent mercaptan having the structure:



wherein a is 0 or 1, m and n are 0 or 1; y = 1 to 4; when y = 1, z is 1 to 4; and when y is more than 1, z is 1; R<sup>1</sup> is an alkyl, alkylenyl, cycloalkyl, cycloalkylenyl, aryl, alkaryl, aralkyl, aralkylenyl, hydroxyalkyl, dihydroxyalkyl, hydroxy(polyalkoxy)alkyl, alkoxyalkyl, hydroxyalkoxyalkyl, alkoxy(hydroxyalkyl), alkoxy(acyloxyalkyl), alkoxy(polyalkoxy)alkyl, alkoxy(polyalkoxy)carbonylalkyl, carboxyalkyl, acyloxyalkyl, acyloxy(hydroxyalkyl), acyloxyalkoxyalkyl, acyloxy(polyalkoxy)alkyl, benzoyloxy(polyalkoxy)alkyl, alkylenebis-(acyloxyalkyl), alkoxycarbonylalkyl, alkoxycarbonylalkylenyl, hydroxyalkoxycarbonylalkyl, hydroxy(polyalkoxy)carbonylalkyl, mercaptoalkyl, mercaptoalkylenyl, mercaptoalkoxycarbonylalkyl, mercaptoalkoxycarbonylalkylenyl, alkoxycarbonyl(amido)alkyl, alkylcarbonyloxy(polyalkoxy)carbonylalkyl, tetrahydropyranyloxy(polyalkoxy)carbonylalkyl, tetrahydropyranyloxyalkyl, hydroxyaryl, mercaptoaryl or carboxyaryl radical having from 1 to 22 carbon atoms; R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, and R<sup>7</sup> are independently hydrogen, a hydroxyl, mercapto, acyl, alkyl, alkylenyl, aryl, haloaryl, alkaryl, aralkyl, hydroxyalkyl, mercaptoalkyl,

hydroxyaryl, alkoxyaryl, alkoxyhydroxyaryl, mercaptoaryl groups having from 1 to 22 carbon atoms; X is aryl, haloaryl, alkaryl, hydroxyaryl, dihydroxyaryl, alkoxyaryl, arylcycloalkyl, or a heteroatom, with the option that when a is 1 and m is 1, R<sup>6</sup> and R<sup>7</sup> form a heterocyclic moiety in conjunction with X as nitrogen, and with the further option that when a = 1 and m = 0, one of R<sup>1</sup>, R<sup>3</sup>, and R<sup>5</sup> joins with R<sup>7</sup> and X to form a heterocyclic moiety with X as a heteroatom selected from the group consisting of oxygen and sulfur; with the proviso that z is 1 or 2 when X is aralkaryl, R<sup>6</sup> and R<sup>7</sup> are hydroxyl, a is 1 and m is 1, and with the further proviso that when R<sup>6</sup> ≠ hydroxyl or mercapto, z is 1; and a mixture of zinc chloride and a zinc carboxylate, with or without a co-stabilizer selected from the group consisting of an epoxy compound and an organic phosphite.

20. The stabilizer composition of claim 19 wherein the latent mercaptan constitutes from about 25 % to about 99.5 % of the total weight.

21. The stabilizer composition of claim 20 comprising from about 0.5 to about 75% of the mixture of zinc carboxylate and zinc chloride by weight.

22. The stabilizer composition of claim 19 wherein the zinc carboxylate and zinc chloride mixture contains from about 15 to about 70% of carboxylate and from about 30 to about 85% of the chloride, expressed as zinc ion.

23. The stabilizer composition of claim 19 wherein the zinc carboxylate and zinc chloride mixture contains from about 35

to about 60% of carboxylate and from about 40 to about 65% of the chloride, expressed as zinc ion.

24. The stabilizer composition of claim 19 without said co-stabilizer.

25. The stabilizer composition of claim 19 comprising from about 0.5 to about 75% of the mixture of zinc carboxylate and zinc chloride by weight.

26. The stabilizer composition of claim 23 wherein the latent mercaptan constitutes from about 25 % to about 99.5 % of the total weight.

27. The stabilizer composition of claim 24 wherein the latent mercaptan constitutes from about 25 % to about 99.5 % of the total weight.

28. The stabilizer composition of claim 25 wherein the latent mercaptan constitutes from about 25 % to about 99.5 % of the total weight.

29. The stabilizer composition of claim 21 wherein the zinc carboxylate and zinc chloride mixture contains from about 15 to about 70% of carboxylate and from about 30 to about 85% of the chloride, by weight, expressed as zinc ion.

30. The stabilizer composition of claim 21 wherein the zinc carboxylate and zinc chloride mixture contains from about 35 to about 60% of carboxylate and from about 40 to about 65% of the chloride, by weight, expressed as zinc ion.

31. The stabilizer composition of claim 24 wherein the zinc carboxylate and zinc chloride mixture contains from about 15 to about 70% of carboxylate and from about 30 to about 85% of the chloride, by weight, expressed as zinc ion.

32. The stabilizer composition of claim 24 wherein the zinc carboxylate and zinc chloride mixture contains from about 35 to about 60% of carboxylate and from about 40 to about 65% of the chloride, by weight, expressed as zinc ion.

33. The stabilizer composition of claim 31 wherein the latent mercaptan constitutes from about 25 % to about 99.5 % of the total weight.

34. The stabilizer composition of claim 32 wherein the latent mercaptan constitutes from about 25 % to about 99.5 % of the total weight.